

DERIVATION OF REGIONAL HAZARDOUS DOSES FOR AMPHIBIANS ACUTELY EXPOSED TO IONISING RADIATION

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Derivation of effect benchmark values for each taxonomic group in a specific region, which has been difficult due to lack of experimental effects data, is required for more adequate protection of the environments from ionising radiation. Estimation of effects doses from nuclear DNA contents and subsequent species sensitivity distribution (SSD) analysis are proposed as a method for such derivation in acute irradiation situations assuming nuclear accidents. As the case study, 5 % hazardous doses (HD_5), at which 95 % species of the Anura and Caudata (amphibians) are protective at the 50 % lethal level, were estimated in a global scale. After nuclear DNA content data were obtained from the database, 50 % lethal doses (LD_{50} s) for 5 and 36 % of the global Anura and Caudata species, respectively, were estimated by correlative equations between nuclear DNA contents and LD_{50} s. The HD_5 s obtained by the SSD analysis of these estimated LD_{50} data were 4.3 and 3.3 Gy for the Anura and Caudata, respectively. Regional differences of the HD_5 values in Asia, Europe and North America will be presented.